

AMENDMENTS TO THE CLAIMS

Claims 1-10 (Canceled)

11. (New) A process for preparing lactones by catalytic carbonylation of oxiranes using a catalyst system comprising

- a) at least one carbonylation catalyst A comprising uncharged or anionic transition metal complexes of metals of groups 5 to 11 of the Periodic Table of the Elements,
- b) at least one metal compound B of the formula (I)



where

M is an element of group 2, 3, 4, 12, 13,

R is hydrogen or a hydrocarbon radical which may be substituted on the carbon atoms other than on the carbon atom bound to M,

X is an anion,

n is a number corresponding to the valence of M,

x is in the range from 0 to n, and

- c) at least one organic, chiral compound C that is a bisoxazoline compound and/or comprises at least one chiral alcohol.

12. (New) The process as claimed in claim 11, wherein enantiomerically enriched lactones are obtained in the process.

13. (New) The process as claimed in claim 11, wherein the component A is selected so that a cobalt carbonyl compound is present under the reaction conditions.
14. (New) The process as claimed in claim 11, wherein M in the formula (I) is Al, Mg, Zn, Ti, Zr or Sn.
15. (New) The process as claimed in claim 11, wherein, in the formula (I), R is hydrogen or C₁₋₃₂-alkyl, C₂₋₂₀-alkenyl, C₃₋₂₀-cycloalkyl, C₆₋₁₈-aryl, C₇₋₂₀-aralkyl or C₇₋₂₀-alkaryl, where substituents may be present on the carbon atoms other than the carbon atom bound to M,

and/or X is Cl, Br, I, sulfonate, oxide, C₁₋₃₂-alkoxide or amide.
16. (New) The process as claimed in claim 11, wherein the component B is AlCl_xR_{3-x}, where x is from 0 to 3 and R is C₁₋₆-alkyl.
17. (New) The process for preparing a catalyst system by mixing the components A, B and C as set forth in claim 11 in any order.
18. (New) A catalyst system comprising the components A, B, C as defined in claim 11.
19. (New) A method of using a catalyst system as claimed in claim 18 in carbonylation reactions.